IN THE CLAIMS

1. (currently amended) An objective design employed for use in inspecting a specimen, comprising:

a focusing lens group comprising at least one focusing lens configured to receive said light energy and form focused light energy;

a plurality of field lenses oriented to receive focused light energy from said focusing lens group and provide intermediate light energy;

a Mangin mirror arrangement positioned to receive the intermediate light energy from the plurality of field lenses through a back side of the Mangin mirror arrangement and form controlled light energy transmitted from a front side of the Mangin mirror arrangement; and

an immersion liquid between the Mangin mirror arrangement and the specimen;

wherein all lenses are constructed of a single glass material.

2. (currently amended) The objective design of claim 1, wherein said objective design provides a relative bandwidth in excess of 0.5 in the presence of said light energy.

3. (currently amended) The objective design of claim 1, said Mangin mirror arrangement comprising:

a first lens/mirror element having substantially curved concave surfaces and a second surface reflection; and

a second lens/mirror element having minimally curved surfaces and a second surface reflection.

4. (currently amended) The objective design of claim 3, wherein said Mangin mirror arrangement further comprises a third lens element having one surface in contact with the immersion liquid.

5. (currently amended) The objective design of claim 1, configured to have a numerical aperture in excess of approximately 0.9.

6. (currently amended) The objective design of claim 1, configured to have a numerical aperture in excess of approximately 1.1.

7. (canceled)

8. (currently amended) The objective design of claim 1, wherein each lens in the focusing lens group and the plurality of field lenses each has a diameter of less than approximately 25 millimeters.

9. (currently amended) The objective design of claim 1, wherein ~~all lenses are constructed of a single glass material~~ the immersion liquid comprises one from a group comprising:

a liquid substance;

a semi-liquid substance;

a viscous substance; and

a partially viscous substance.

10. (canceled)

11. (currently amended) The objective design of claim 1, wherein the single glass material is fused silica.

12. (canceled)

13. (currently amended) The objective design of claim 2, said objective design providing bandwidth less than approximately 0.9 with a center wavelength of 633 nm.

14. (currently amended) The objective design of claim 2, wherein bandwidth is less than approximately 0.07 with a center wavelength of 196nm.

15. (canceled)

16. (canceled)

17. (currently amended) The objective design of claim 1, wherein said objective design is employed with a microscope having a flange, wherein the flange may be located approximately 45 millimeters from the specimen.

18. (currently amended) The objective design of claim 1, wherein said objective design is employed with a microscope having a flange, wherein the flange may be located approximately 100 millimeters from the specimen.

19. (currently amended) The objective design of claim 1, wherein said focusing lens and field lens forms an intermediate image between said field lens and said Mangin mirror arrangement.

20-63. (canceled)

64. (currently amended) The objective design of claim 1, where the immersion liquid has a refractive index greater than pure water.

65. (canceled)

66. (canceled)

67. (currently amended) An objective design, comprising:

a focusing lens group comprising at least one focusing lens configured to receive light energy and form focused light energy;

a field lens oriented to receive focused light energy from said focusing lens group and provide intermediate light energy;

a Mangin mirror arrangement positioned to receive the intermediate light energy from the field lens through a backside of said Mangin mirror arrangement and form controlled light energy using a front side of said Mangin mirror arrangement; and

an immersion liquid between the Mangin mirror arrangement and a specimen;

said Mangin mirror arrangement is configured to impart the controlled light energy to the specimen with a numerical aperture in excess of 0.9 and a field size of greater than or equal to approximately 0.10 mm.

68. (currently amended) The objective <u>design</u> of claim 67, wherein said objective <u>design</u> provides a relative bandwidth in excess of 0.5 in the presence of said light energy.

69. (currently amended) The objective <u>design</u> of claim 67, said Mangin mirror arrangement comprising:

a first lens/mirror element having substantially curved concave surfaces and a second surface reflection; and

a second lens/mirror element having minimally curved surfaces and a second surface reflection.

70. (currently amended) The objective <u>design</u> of claim 69, wherein said Mangin mirror arrangement further comprises a third lens element having one surface in contact with the immersion liquid.

71. (currently amended) The objective <u>design</u> of claim 67, wherein said objective <u>design</u> is configured to be used with light energy having a wavelength in the range of approximately 190 to 1000 nanometers.

72. (currently amended) The objective <u>design</u> of claim 67, configured to have a numerical aperture in excess of approximately 1.1.

73. (currently amended) The objective design of claim 67, wherein each lens in the focusing lens group and the field lens each has a diameter of less than approximately 25 millimeters.

75. (currently amended) The objective design of claim 67, wherein all lenses are constructed of a single glass material.

76. (currently amended) An objective design employed for use in inspecting a specimen, comprising:

a focusing lens group ~~configured to receive light energy and~~ comprising at least one focusing lens;

at least one field lens oriented to receive focused light energy from said focusing lens group and provide intermediate light energy;

a Mangin mirror arrangement positioned to receive the intermediate light energy from the at least one field lens through a back side of the Mangin mirror arrangement and form controlled light energy using a front side of the Mangin mirror arrangement; and

an immersion liquid located between said Mangin mirror arrangement and said specimen;

said Mangin mirror arrangement imparting the controlled light energy to the specimen with a numerical aperture in excess of 0.9 and a field size of greater than or equal to approximately 0.10 mm.

77. (currently amended) The objective design of claim 75, wherein said objective design provides a relative bandwidth in excess of 0.5 in the presence of said light energy, said light energy having a wavelength in the range of approximately 157 nanometers through the infrared light range.

78. (currently amended) The objective design of claim 75, said Mangin mirror arrangement comprising:

a first lens/mirror element having substantially curved concave surfaces and a second surface reflection; and

a second lens/mirror element having minimally curved surfaces and a second surface reflection.

79. (currently amended) The objective <u>design</u> of claim 75, said Mangin mirror arrangement comprising:

a first lens/mirror element having substantially curved concave surfaces and a second surface reflection; and

a second lens/mirror element having minimally curved surfaces and a second surface reflection; and

a third lens element having one surface in contact with the immersion liquid.

80. (currently amended) The objective <u>design</u> of claim 75, wherein each lens in the objective <u>design</u> has a diameter of less than approximately 25 millimeters.

81. (currently amended) The objective <u>design</u> of claim 75 where the numerical aperture is greater than approximately 0.9.

82. (currently amended) The objective <u>design</u> of claim 75, where the numerical aperture is greater than approximately 1.1.

83. (currently amended) The objective <u>design</u> of claim 75, wherein all lenses in the objective <u>design</u> are constructed of a single glass material.

84. (currently amended) The objective <u>design</u> of claim 82, wherein the single glass material is fused silica.

85. (currently amended) The objective <u>design</u> of claim 75, wherein corrected bandwidth for the objective is less than approximately 0.9 with a center wavelength of approximately 633 nm.

86. (currently amended) The objective design of claim 75, wherein corrected bandwidth is less than approximately 0.07 with a center wavelength of approximately 196 nm.

87. (currently amended) The objective design of claim 75, wherein said objective design may be located in a flange within a microscope, said flange positioned no more than approximately 45 millimeters from the specimen during normal operation.

88. (currently amended) The objective design of claim 75, wherein said objective design may be located in a flange within a microscope, said flange positioned no more than approximately 100 millimeters from the specimen during normal operation.

89. (currently amended) The objective design of claim 75, wherein the immersion liquid is primarily water.

90. (currently amended) The objective design of claim 75, wherein the immersion liquid is primarily oil.

91. (currently amended) The objective design of claim 75, wherein the immersion liquid is primarily silicone gel.

92. (currently amended) The objective design of claim 75, wherein the objective is optimized to produce relatively minimal spherical aberration, axial color, and chromatic variation of aberrations.

93. (currently amended) The objective design of claim 75, said objective having a numerical aperture of greater than approximately 1.0 at the specimen.

94. (currently amended) The objective design of claim 75, wherein each lens in the objective design has a diameter of less than approximately 35 millimeters.

95. (currently amended) The objective design of claim 75, said objective design having an ability to be employed with a microscope having a flange, wherein the flange may be located less than no more than approximately 45 millimeters from the specimen during normal operation.

96. (currently amended) The objective design of claim 75, said objective design employing no more than two glass materials.

97. (currently amended) The objective design of claim 95, wherein the no more than two glass materials comprise fused silica and calcium fluoride.

98. (currently amended) The objective design of claim 75, wherein the immersion liquid comprises one from a group comprising water, oil, and silicone gel.

99. (currently amended) The objective design of claim 75, where the immersion liquid has a refractive index greater than pure water.